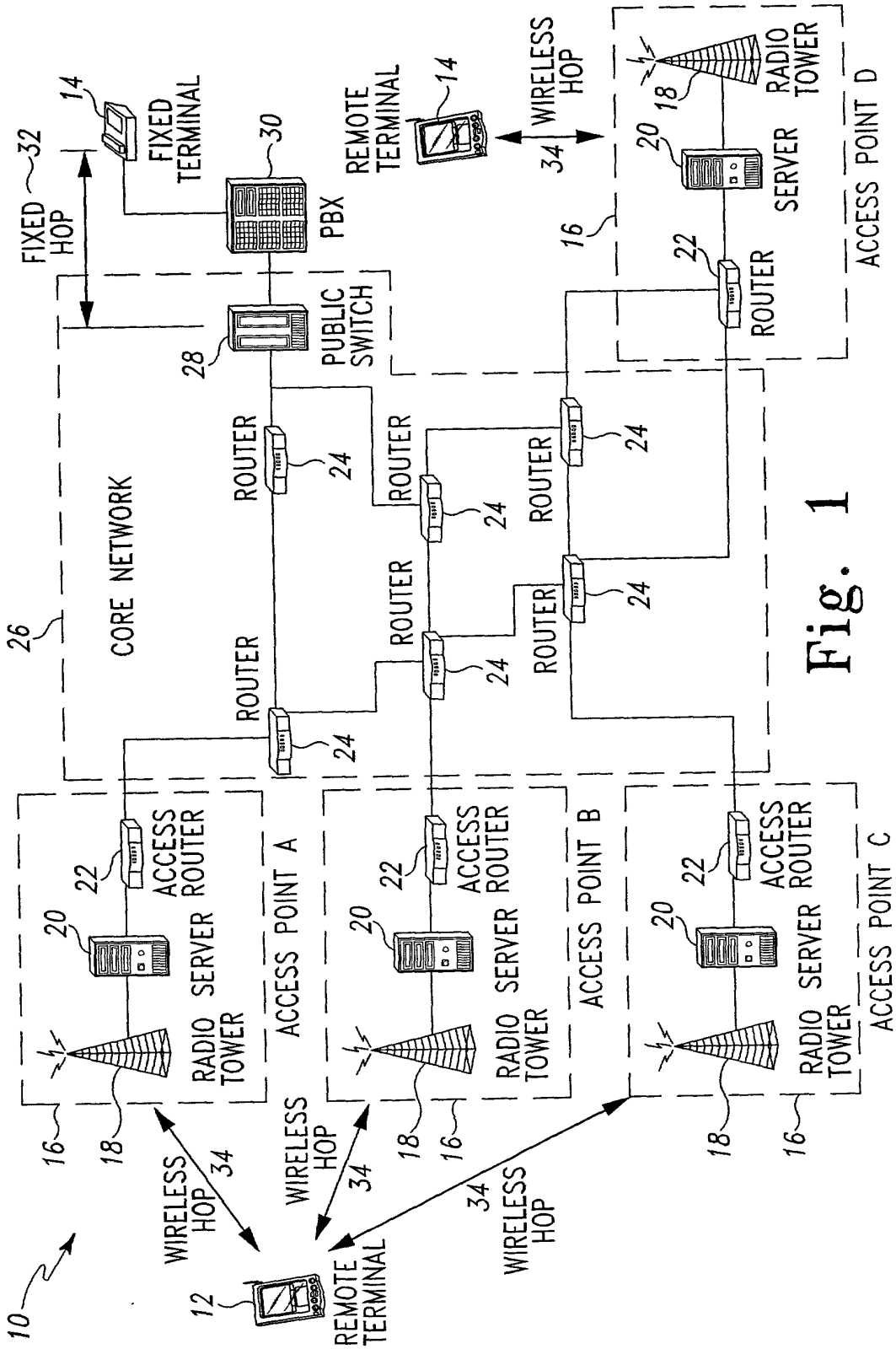
10
12
REMOTE TERMINAL
WIRELESS HOP
34
16
18
RADIO TOWER
SERVER
20
ACCESS ROUTER
22
ACCESS POINT A
ACCESS POINT B
ACCESS POINT C
ACCESS POINT D
ROUTER
24
CORE NETWORK
26
PUBLIC SWITCH
28
PBX
30
FIXED HOP
32
FIXED TERMINAL
14
REMOTE TERMINAL
14

Fig. 1

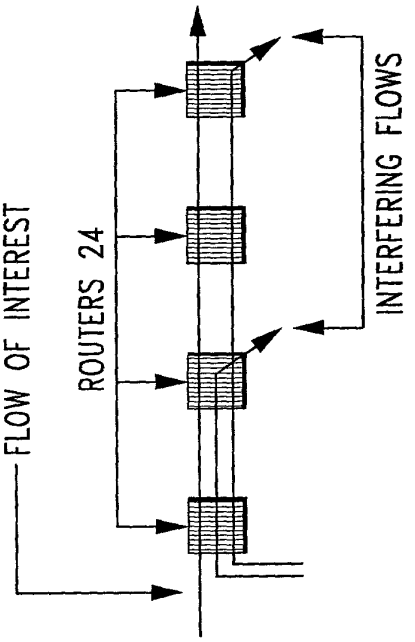
FLOW OF INTEREST
ROUTERS 24
INTERFERING FLOWS

Fig. 3

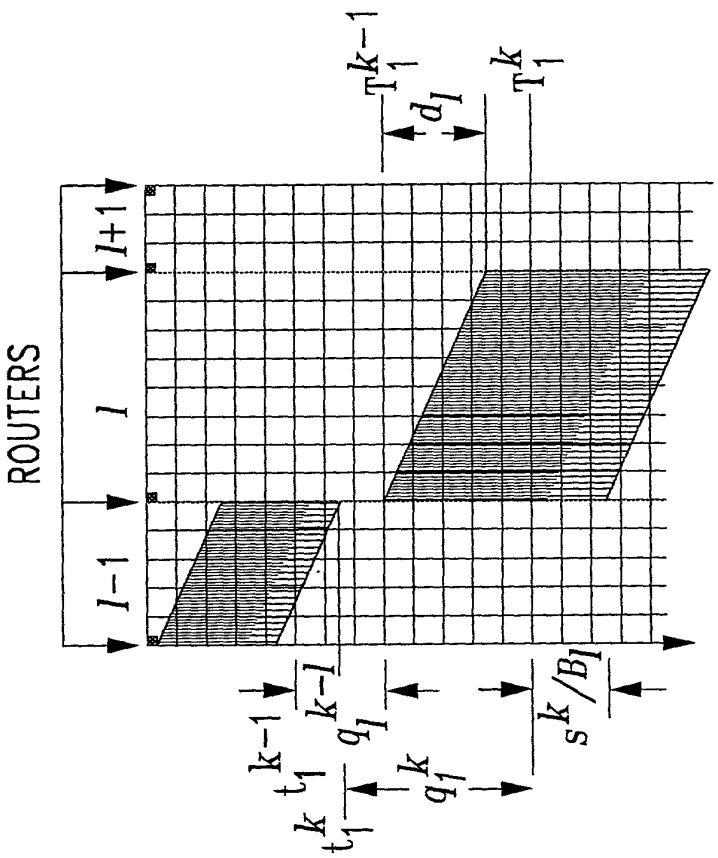
ROUTERS
l-1
l
l+1
TIME
T_1^{k-1}
d_l
T_1^k
t_1^{k-1}
t_1^k
q_l^{k-1}
q_l^k
s^k/B_l

Fig. 2

Probe 1		Probe 2		Routers	
Field 1	Field 2	Field 3	Field 4	Field 5	Field 6
$\sum_{i=0}^{l-1} q_i^{probe_1}$	Max: $\hat{q}_i^{voice} + s^{probe_1}/B_i$ i=0, ..., l−1	$\sum_{i=0}^{l-1} q_i^{probe_2}$	Max: $\hat{q}_i^{voice} + s^{probe_2}/B_i$ i=0, ..., l−1	$\sum_{i=0}^{l-1} \hat{q}_i^{voice}$	$\sum_{i=1}^{l-1} \hat{\Delta} q_i^{voice}$

Fig. 4

Router (l)			
Forward	$\hat{q}_l^{voice}$	$q_{l\,previous}^{voice}$	$\hat{\Delta} q_l^{voice}$
Reverse	$\hat{q}_l^{voice}$	$q_{l\,previous}^{voice}$	$\hat{\Delta} q_l^{voice}$

Fig. 5

	Probe Queuing Delay	Transmission Delay
Probe 1	$q_l^{probe_1}$	$\left(s^{probe_1}/B_l\right)$
Probe 2	$q_l^{probe_2}$	$\left(s^{probe_2}/B_l\right)$

Fig. 6

	Inferred From Probe 1		Inferred From Probe 2		Network	Network
	Field 1	Field 2	Field 3	Field 4	Field 5	Field 6
Forward Collector	$\sum_{i=0}^{l-1} q_i^{probe_1}$	Max: $q_i^{\wedge voice} + s^{probe_1} / B_i$ i=0, ..., l-1	$\sum_{i=0}^{l-1} q_i^{probe_2}$	Max: $q_i^{\wedge voice} + s^{probe_2} / B_i$ i=0, ..., l-1	$\sum_{i=0}^{l-1} q_i^{\wedge voice}$	$\sum_{i=0}^{l-1} \Delta q_i^{\wedge voice}$
Reverse Collector	$\sum_{i=0}^{l-1} q_i^{probe_1}$	Max: $q_i^{\wedge voice} + s^{probe_1} / B_i$ i=0, ..., l-1	$\sum_{i=0}^{l-1} q_i^{probe_2}$	Max: $q_i^{\wedge voice} + s^{probe_2} / B_i$ i=0, ..., l-1	$\sum_{i=0}^{l-1} q_i^{\wedge voice}$	$\sum_{i=0}^{l-1} \Delta q_i^{\wedge voice}$

Fig. 7

	Probe 1	Probe 2
Departure Time (From AR)	$T_{AR}^{probe_1}$	$T_{AR}^{probe_2}$
RTT (Round-Trip Time)	RRT_{probe_1}	RRT_{probe_2}
Arrival Time (At Correspondent Node)	$t_{CN}^{probe_1}$	$t_{CN}^{probe_2}$
Departure Time (From Correspondent Node)	$T_{CN}^{probe_1}$	$T_{CN}^{probe_2}$
Arrival Time (At AR)	$t_{AR}^{probe_1}$	$t_{AR}^{probe_2}$

Fig. 8

For: QUALITY OF SERVICE AWARE HANDOFF TRIGGER
Inventors: Johnny M Matta, et al.
Serial No. 10/056,576, Atty. Docket: 10745/032

Delay (Δ)	$\tau_{total} = \tau_0 + \tau_1 + \ldots + \tau_{l-1}$
Jitter $(\Delta\tau)$	$\Delta\tau_{total} = \sqrt{(\Delta\tau_0)^2 + (\Delta\tau_1)^2 + \ldots + (\Delta\tau_{l-1})^2}$
Bandwidth (B)	$B_{total} = \{\min(B_i); i = 0, \ldots, (l-1)\}$
Packet Loss (L)	$L_{total} = 1 - [(1-L_0) \times (1-L_1) \times \ldots \times (1-L_{l-1})]$

Fig. 9

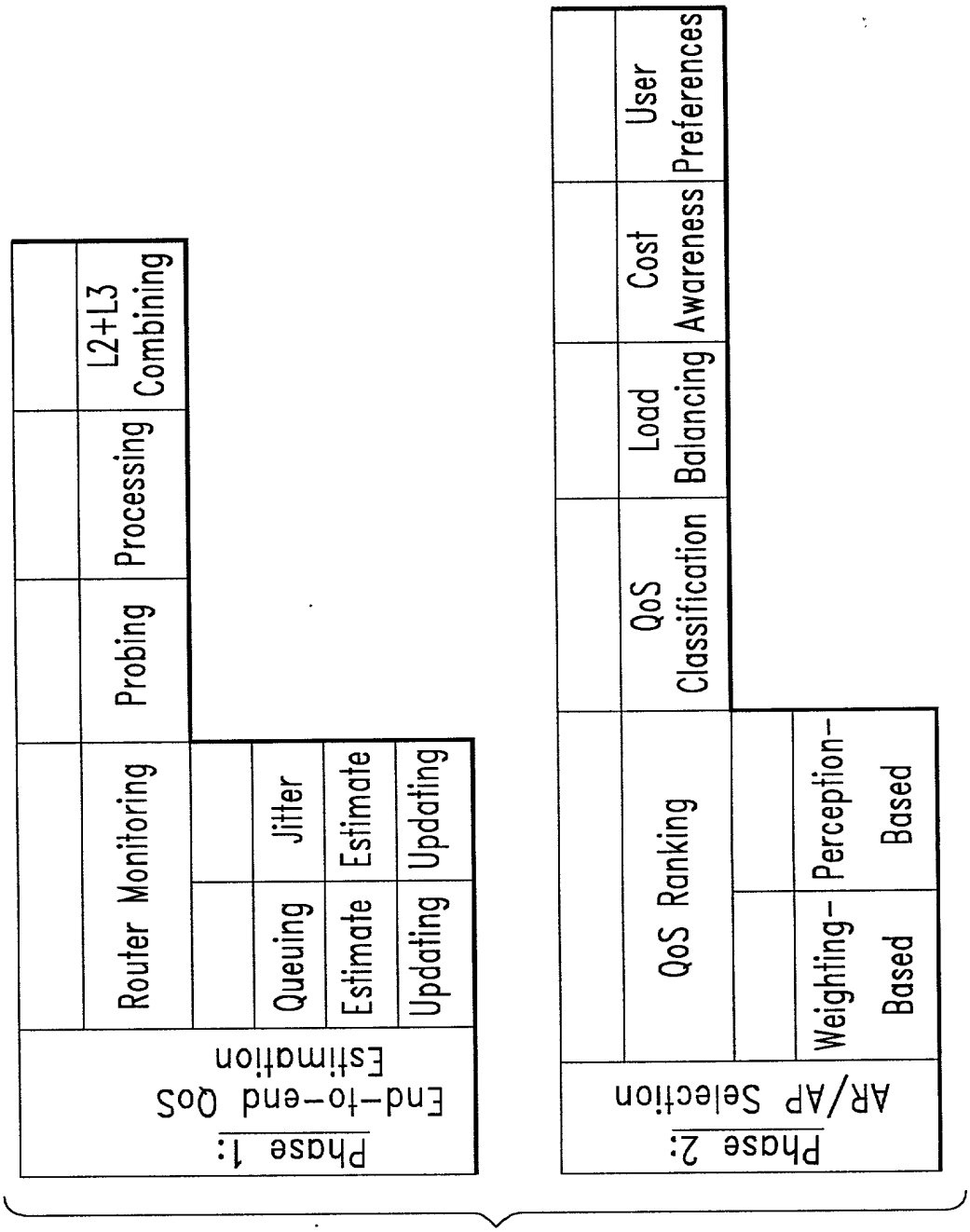
Phase 1:
End-to-end QoS Estimation
Router Monitoring
Probing
Processing
L2+L3 Combining
Queuing Estimate Updating
Jitter Estimate Updating
Phase 2:
AR/AP Selection
QoS Ranking
QoS Classification
Load Balancing
Cost Awareness
User Preferences
Weighting-Based
Perception-Based

Fig. 10